UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/752,885	12/28/2000	Kartik S. Chandran	CISCP197	9422

22434 7590 04/21/2005

BEYER WEAVER & THOMAS LLP
P.O. BOX 70250
OAKLAND, CA 94612-0250

EXAMINER	
YAO, KWANG BIN	
ART UNIT	**PAPER NUMBER**
2667	

DATE MAILED: 04/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/752,885	CHANDRAN ET AL.	
	Examiner	Art Unit	
	Kwang B. Yao	2667	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 December 2000*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *2/12/01*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claim 11 is objected to because of the following informalities: it appears that claim 11 should depend on claim 1 rather than claim 12. Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-5, 8-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art in view of Erimli et al. (US 6,745,246).

The admitted prior art disclose the following features: regarding claim 1, in a cable network headend (Fig. 1, CMTS 100), a method of applying a specified quality of service to a multicast transmission on a cable network, the method comprising: creating a virtual cable modem (Fig. 1, Per Cable Modem Classifier List 111) and specifying one more quality of service parameters (page 1, lines 14-26; page 2, lines 6-14) for the virtual cable modem (Fig. 1, Per Cable Modem Classifier List 111), thereby controlling the multicast transmission quality of service on the cable network; and providing the multicast transmission on the cable network according to the specified quality of service parameters (page 1, lines 14-26; page 2, lines 6-14); regarding claim 4, wherein creating a virtual cable modem (Fig. 1, Per Cable Modem Classifier

List 111) comprises creating a record of the virtual cable modem (Fig. 1, Per Cable Modem Classifier List 111) in a table of cable modems provided in the cable network headend (Fig. 1, CMTS 100); regarding claim 5, wherein the table of cable modems contains the IP addresses (page 2, line 23) of cable modems connected to the cable network headend (Fig. 1, CMTS 100); regarding claim 8, wherein creating a virtual cable modem (Fig. 1, Per Cable Modem Classifier List 111) comprises creating a flow list (Fig. 1, Per Cable Modem List 113) associated with the virtual cable modem (Fig. 1, Per Cable Modem Classifier List 111) and specifying the quality of service parameters (page 1, lines 14-26; page 2, lines 6-14) for the multicast transmission regarding claim 9, wherein creating a virtual cable modem (Fig. 1, Per Cable Modem Classifier List 111) further comprises specifying a classifier list specifying types of traffic that may be received by the virtual cable modem (Fig. 1, Per Cable Modem Classifier List 111); regarding claim 10, wherein the cable network employs DOCSIS (page 2, lines 1-16) to provide the multicast transmission; regarding claim 11, wherein the cable network employs DOCSIS (page 2, lines 1-16), version 1.1; regarding claim 12, wherein specifying the one more quality of service parameters (page 1, lines 14-26; page 2, lines 6-14) for the virtual cable modem (Fig. 1, Per Cable Modem Classifier List 111) comprises specifying quality of service parameters (page 1, lines 14-26; page 2, lines 6-14) in a format allowed for DOCSIS (page 2, lines 1-16) unicast transmissions; regarding claim 15, a computer program product comprising a machine readable medium on which is provided program instructions for applying quality of service to a multicast transmission on a cable network, the instructions encoding a method comprising: creating a virtual cable modem (Fig. 1, Per Cable Modem Classifier List 111) and specifying one more quality of service parameters (page 1, lines 14-26; page 2, lines 6-14) for the virtual cable

modem (Fig. 1, Per Cable Modem Classifier List 111), thereby controlling the multicast transmission quality of service on the cable network; and providing the multicast transmission on the cable network according to the specified quality of service parameters (page 1, lines 14-26; page 2, lines 6-14); regarding claim 18, wherein instructions for creating a virtual cable modem (Fig. 1, Per Cable Modem Classifier List 111) include instructions for creating a record of the virtual cable modem (Fig. 1, Per Cable Modem Classifier List 111) in a table of cable modems provided in the cable network headend (Fig. 1, CMTS 100); regarding claim 19, an apparatus for applying a specified quality of service to a multicast transmission on a cable network, the apparatus comprising: a network interface allowing the apparatus to connect with an external network (Fig 1, External Network 101) and receive one or more packets associated with the multicast transmission; a cable network interface allowing the apparatus to connect with a cable network and introduce the multicast transmission onto the cable network; and a processor configured or designed to create a virtual cable modem (Fig. 1, Per Cable Modem Classifier List 111) associated with one or more quality of service parameters (page 1, lines 14-26; page 2, lines 6-14), thereby controlling the multicast transmission quality of service on the cable network; regarding claim 20, a memory device on which the processor can store a table of cable modems, including the virtual cable modem (Fig. 1, Per Cable Modem Classifier List 111); regarding claim 21, wherein the memory device can store a classifier table (Fig. 1, Per Cable Modem Classifier List 111) and a flow list (Fig. 1, Per Cable Modem Flow List 113) associated with the virtual cable modem (Fig. 1, Per Cable Modem Classifier List 111); regarding claim 23, wherein the cable network employs DOCSIS (page 2, lines 1-16) to provide the multicast transmission; regarding claim 24, wherein the cable network employs DOCSIS (page 2, lines 1-16), version

1.1; regarding claim 26, an apparatus for applying a specified quality of service to a multicast transmission on a cable network, the apparatus comprising: means for transmitting a stream of multicast content to one or more cable modems on the cable network; and processing means for applying the quality of service parameters (page 1, lines 14-26; page 2, lines 6-14) specified in the packets received from the external network (Fig 1, External Network 101) to the transmission of the stream of multicast content to one or more cable modems on the cable network. See the present application, pages 1-5.

The admitted prior art does not disclose the following features: regarding claim 1, receiving a level three communication specifying one or more quality of service parameters for the multicast transmission; regarding claim 2, receiving a level three message prior to providing the multicast transmission on the cable network; regarding claim 3, wherein the message is provided using RSVP; regarding claim 13, wherein the cable network headend receives request to receive a multicast packet from a host connected to the cable network headend prior to providing the multicast transmission; regarding claim 14, wherein the cable network headend receives an IGMP JOIN from a host on the cable network prior to providing the multicast transmission; regarding claim 15, receiving a level three communication specifying one or more quality of service parameters for the multicast transmission; regarding claim 16, wherein instructions for providing the multicast transmission on the cable network further comprise instructions for receiving a level three message prior to providing the multicast transmission on the cable network; regarding claim 17, wherein instructions for receiving the level three communication further comprise instructions for receiving an RSVP message; regarding claim 19, wherein the one or more packets contain quality of service parameters for the multicast

transmission; regarding claim 22, wherein the one or more packets containing quality of service parameters is an RSVP PATH message; regarding claim 25, wherein the cable network headend receives an IGMP JOIN message prior to making the multicast transmission; regarding claim 26, means for receiving from an external network one or more packets associated with quality of service parameters for a multicast stream.

Erimli et al. discloses a communication system comprising the following features: regarding claim 1, receiving a level three communication (Fig. 3, RESV 70) specifying one or more quality of service parameters (Fig. 3, QOS 88) for the multicast transmission; regarding claim 2, receiving a level three message (Fig. 3, RESV 70) prior to (column 4, lines 4-48) providing the multicast transmission on the cable network; regarding claim 3, wherein the message is provided using RSVP (Fig. 3, RSVP 76, column 4, lines 31-48; column 5, lines 24-60); regarding claim 13, wherein the cable network headend receives request to receive a multicast packet from a host connected to the cable network headend prior to (column 4, lines 4-48) providing the multicast transmission; regarding claim 14, wherein the cable network headend receives an IGMP JOIN (column 4, lines 15-30) from a host on the cable network prior to (column 4, lines 4-48) providing the multicast transmission; regarding claim 15, receiving a level three communication (Fig. 3, RESV 70) specifying one or more quality of service parameters (Fig. 3, QOS 88) for the multicast transmission; regarding claim 16, wherein instructions (Fig. 4) for providing the multicast transmission on the cable network further comprise instructions (Fig. 4) for receiving a level three message (Fig. 3, RESV 70) prior to (column 4, lines 4-48) providing the multicast transmission on the cable network; regarding claim 17, wherein instructions (Fig. 4) for receiving the level three communication (Fig. 3, RESV 70) further

comprise instructions (Fig. 4) for receiving an RSVP (Fig. 3, RSVP 76, column 4, lines 31-48; column 5, lines 24-60) message; regarding claim 19, wherein the one or more packets contain quality of service parameters (Fig. 3, QOS 88) for the multicast transmission; regarding claim 22, wherein the one or more packets containing quality of service parameters (Fig. 3, QOS 88) is an RSVP (Fig. 3, RSVP 76, column 4, lines 31-48; column 5, lines 24-60) PATH message; regarding claim 25, wherein the cable network headend receives an IGMP JOIN (column 4, lines 15-30) message prior to (column 4, lines 4-48) making the multicast transmission; regarding claim 26, means for receiving from an external network one or more packets associated with quality of service parameters (Fig. 3, QOS 88) for a multicast stream. See column 3-9. It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of the admitted prior art by using the features, as taught by Erimli et al., in order to provide an easily programmable system to identify data packets carrying bandwidth reservation messages so that QoS can be achieved. See Erimli et al., column 2, lines 33-36.

4. Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art in view of Erimli et al. (US 6,745,246) as applied to claims 1, 4 above, and further in view of Kadambi et al. (US 6,707,818).

The admitted prior art and Erimli et al. disclose the claimed limitations above. The admitted prior art and Erimli et al. do not disclose the following features: regarding claim 6, wherein the record identifies the virtual cable modem by a protocol specified multicast address; regarding claim 7, wherein the protocol specified multicast address is a Class D IP address.

Kadambi et al. discloses a communication system comprising the following features: regarding claim 6, wherein the record identifies the virtual cable modem by a protocol specified

multicast address (Fig. 25, step 25-1, 25-3; column 53, lines 14-43); regarding claim 7, wherein the protocol specified multicast address (Fig. 25, step 25-1, 25-3; column 53, lines 14-43) is a Class D IP address. It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of the admitted prior art and Erimli et al. by using the features, as taught by Kadambi et al., in order to provide an efficient communication system by maximize the ability of packet-forwarding at linespeed. See Kadambi et al., column 1, lines 42-43.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Baum et al. (US 6,771,673) discloses a method for providing access to an edge router.

Kikki et al. (US 6,549,938) discloses a system for achieving a comparable QoS.

Wicklund (US 6,337,860) discloses a communication network.

Katsube et al. (US 5,930,259) discloses a packet transmission system.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kwang B. Yao whose telephone number is 571-272-3182. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chi H Pham can be reached on 571-272-3179. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

KWANG BIN YAO
PRIMARY EXAMINER

Kwang B. Yao
April 13, 2005